

I. SITE INFORMATIONI. GENERAL

Site Name: Sauget Sites Area #1

ILD# See CERCLIS

Site Location: Along either side of Dead Creek -
 from the Alton and Southern RR in
 Sauget, IL 62201 to Jerome Ln.,
 Cahokia, IL 62206, St. Clair Co.

LPC# More than one #

Work plan prepared by:

Timothy J. Murphy

Estimated inspection date: March 27 & 28, 1990

Work plan approved by:

Alan Altman 3/27/91

II. THE ASSIGNMENT

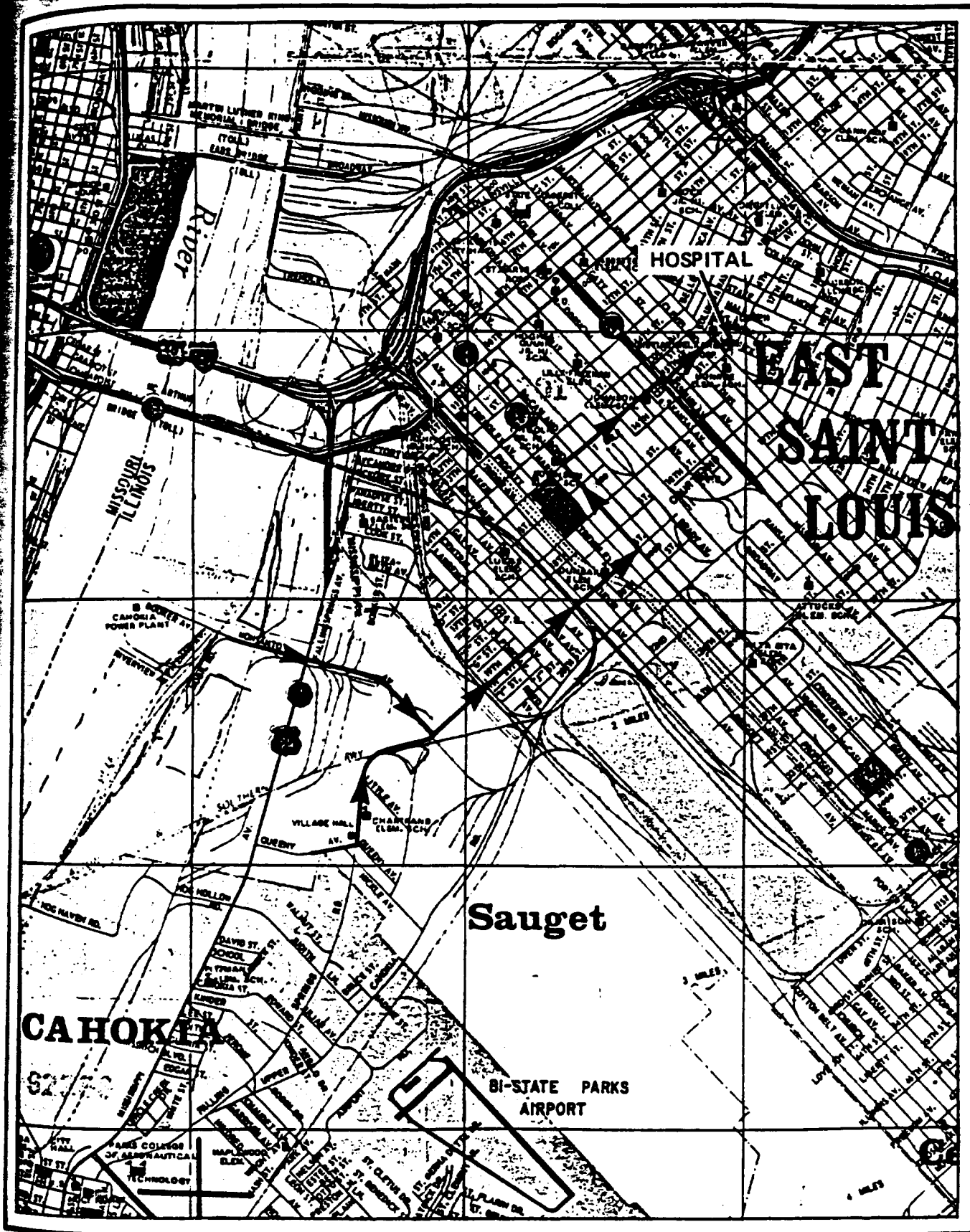
Previous reports and QA/QCed sample data have somewhat defined the contaminant sources at the Area 1 sites. Residential soil samples w/in 2' of the surface will be collected during this SSI to determine if attributable contaminants are exposing nearby populations. Air monitoring will also be utilized with a 11.7 HNU at the breathing zone as compared to upwind samples. A Contaminated private drinking well will be rechecked to verify contamination while several other nearby wells will be tested for the first time.

III. SITE DESCRIPTION

Ten hazardous waste sites (CS-A, CS-B, CS-C, CS-D, Site G, Site I, Site H, Site L, Site M, and Site N) are to be aggregated into Area #1. At one time or another, these site have been the recipients of hazardous and/or unknown wastes through landfilling or dumping. These Sauget sites are located on either side of Dead Creek south from the Alton and Southern RR to Cahokia St. Geology consists of alluvial deposits. Site access is not controlled at site L, CS-C or at CS-D.

II. FIELD WORK PROPOSED

Activity	Reference Point
<input checked="" type="checkbox"/> Ambient Air Sampling (HNU)	IEPA Methods Manual pp.19-23
<input type="checkbox"/> Groundwater Sampling	IEPA Methods Manual pp.1-5
<input type="checkbox"/> Surface Water Sampling	IEPA Methods Manual pp.6-10
<input checked="" type="checkbox"/> Soil/Sediment Sampling	IEPA Methods Manual pp.13-18
<input checked="" type="checkbox"/> Tap Water Sampling	IEPA Methods Manual pp.11-12
<input type="checkbox"/> Slope Determinations	IEPA Methods Manual pp.24-25
<input type="checkbox"/> Water Level Measurements	IEPA Methods Manual p.31
<input checked="" type="checkbox"/> Perimeter Survey	IEPA Methods Manual p.33
<input checked="" type="checkbox"/> Site Inspection	IEPA Methods Manual pp.34-39
<input type="checkbox"/> Soil Borings/Well Installation	IEPA Methods Manual pp.26-30
<input checked="" type="checkbox"/> Public Interviews	IEPA Methods Manual p.40
<input type="checkbox"/> Groundwater Flow Determination	IEPA Methods Manual p.32
<input checked="" type="checkbox"/> Decontamination Procedures	IEPA Methods Manual pp.41-56
<input type="checkbox"/> Others:	



HOSPITAL ROUTES

III. DERMAL AND RESPIRATORY PROTECTION

Soil/sediment sampling will be conducted in level D with continuous air monitoring using the HNU and readily provisions to upgrade to level C or level B. If the breathing zone monitors 0 to 5 units above background, level C will be used, while a reading of 5 to 50 units above background will require SCBA's. Private well and wipe samples will be conducted in level D while also monitoring the breathing zone.

IV. EMERGENCY INFORMATION

Nearest Hospital: Christian Welfare Hospital (Phone) 618-874-7076
M L King Dr., E. St. Louis, IL 62205
Hospital Location: Monsanto Ave. east to Monsanto Rd. (19th St. in E. St. Louis) north on 19th St. to Bond Ave., west on Bond Ave. to 15th St., north on 15th St. to King Dr.
Ambulance Service: Braun Colonial Funeral Home (Phone) 618-332-6793
Fire Service: Cahokia (Phone) 618-332-3636
Police: Cahokia (Phone) 618-332-4065

III. FIELD ACTIVITIES

I. TEAM ASSIGNMENTS

NAME	Responsibility
Tim Murphy	Project Manager
Greg Dunn	Sampler/Safty officer
Ken Corkill	Sampler
Judy Triller	Sampler

IV. SITE HISTORY

PRP's for the sites are listed in E&E's report prepared for IEPA.

The report assimilated previous reports, studies, and file information for each site at Area's #1 and #2 in Sauget. Over the last 3/4 of a century, these sites have been recipients of hazardous wastes which have resulted in soil, surface water and groundwater contamination as well as air releases of contamination.

II. SAFETY CONSIDERATIONS

I. PHYSICAL HAZARDS AT SITE

Heat cold stress will be monitored on all personnel while on site.

II. CHEMICAL HAZARDS AT SITE

Some of the wastes that have been identified at each of the five hazardous waste sites include aliphatic hydrocarbons (CS-A, CS-B and G), chloro-anilines (G and I), chlorobenzenes (CS-A, CS-B, G and I), chloronitro-benzenes (CS-B), chlorophenols (CS-B, G, I, and L), dioxins/dibenzofurans (CS-B), naphthalenes (CS-B), PCB's (CS-A, CS-B, CS-C, and G), phenathrene (G), phenol (CS-B, I and L), pyrene (G), as well as other organic and inorganic waste.

IV. SAMPLING

I. PROCEDURES

All samples will be collected according to IEPA Pre-Remedial Program Site Inspection QAPP. Soil samples will be collected with stainless steel bucket augers and spoons.

II. LOCATION OF SAMPLES

<u>Sample #</u>	<u>Type</u>	<u>Location</u>
G201 through G205	__groundwater__	See Sample Location Map
X101 through X115	__soil/sediment__	_____ " _____

III. ANALYTICAL SERVICES

Analysis will be for the Target Compound List using the IEPA Springfield, IL laboratory for organics and the Champaign, IL laboratory for inorganics.

EXECUTIVE SUMMARY

The Dead Creek Project sites, or Sauget Sites, are located in west-central St. Clair County, Illinois, directly across the Mississippi River from St. Louis, Missouri. The project area consists of 12 suspected uncontrolled hazardous waste sites, and six segments of Dead Creek, which is an intermittent stream flowing southerly in the eastern portion of the project area. The project sites consist of former municipal and industrial waste landfills; surface impoundments or lagoons; surface disposal areas; and past excavations thought to be filled or partially filled with unknown industrial wastes. Waste disposal activities in the area apparently began sometime prior to 1940, and continued until approximately 1983, which marks the most recent available file information concerning active waste disposal at the project sites.

To avoid confusion stemming from various file designations or aliases for the various sites or creek sectors, each site or creek sector has been assigned an alphabetical designation. Additionally, sites were grouped into areas based on geographical relationship, common ownership or operation, and similar waste types and exposure pathways.

Several of the project sites have previously been investigated by the Illinois Environmental Protection Agency (IEPA), the United States Environmental Protection Agency (USEPA), and various consultants for the agencies or for area industries. These investigations focused, for the most part, on environmental problems in Dead Creek and the surrounding area, and on the disposal sites adjacent to the Mississippi River. The investigations indicated that significant and widespread contamination

existed in the project area, and raised concern that additional unidentified source areas may be contributing to the general degradation of air, surface water, and groundwater quality in the area.

Based on the findings of the initial investigations and media sampling, IEPA attempted to obtain federal funding for remedial action at two of the project sites through the Hazard Ranking System (HRS) scoring process, which employs a numerical model to prioritize uncontrolled waste sites across the country. In this process, sites that score above a designated cutoff point are placed on the National Priorities List (NPL), and become eligible for federal funding for cleanup under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980. Sites that qualify for the NPL proceed to the remedial process, which, in short, includes a remedial investigation/feasibility study (RI/FS), remedial design, and remedial action. The purpose of the RI/FS is to define the extent of contamination and the risks associated with the migration of contaminants, and to screen alternatives for cleanup. The most appropriate alternatives are typically tested on a small scale, and the most cost-efficient and effective alternative is selected to be designed for full-scale operation at the site. The process culminates with the implementation of the remedial option in the field.

The initial attempts to qualify the Dead Creek Project sites for the NPL were unsuccessful because sufficient background information and analytical data were not available to address several specific elements of the HRS model. IEPA subsequently determined that the best available option for funding site remediation was to conduct more detailed site investigations designed to develop a sufficient data base for HRS scoring. In 1985, IEPA authorized an expanded site investigation (SI) to accomplish these objectives.

Preliminary SI activities began in October 1985, and field investigations were conducted during the period from November 1986 to July 1987. Geophysical investigations, consisting of magnetometry and electromagnetic induction surveys, were conducted at project sites in the vicinity of Dead Creek. A semiquantitative soil gas monitoring survey was conducted to enable more efficient placement of soil borings and monitoring wells. A total of 96 sample locations were analyzed

during the soil gas survey. Surface soils were sampled at 43 locations at two of the project sites. Thirteen surface water and 33 sediment samples were collected across four segments of Dead Creek. A total of 75 subsurface soil samples were collected from 51 borehole locations across the project area. Shallow monitoring wells were installed at 35 locations, and hydraulic conductivity tests were conducted at 15 of the wells. A total of 56 groundwater samples were collected from new and existing monitoring wells and from five private wells. Air sampling was conducted over a two-day period at six locations near Dead Creek and six locations around the sites adjacent to the Mississippi River.

The geophysical investigations indicated the presence of large quantities of buried ferrous metal objects (possibly drums) at two of the four sites surveyed. The areas indicated as anomalous in the surveys at these two sites correspond to the boundaries of large excavated areas seen in historical aerial photographs. Survey results from the remaining two sites did not indicate any significant differences between on-site and background conditions.

The soil gas test results identified several locations with high volatile organic concentrations at depths ranging from 3 to 5 feet below ground surface. The locations that showed the highest concentrations corresponded to the excavated areas identified in historical aerial photographs. The results of the soil gas survey provided a basis for locating the soil borings and monitoring wells.

Analysis of the surface soil samples revealed high concentrations of organic contaminants over the entire surface of a site adjacent to Dead Creek. Based upon the sample results for this site, a fence was constructed and warning signs were posted in order to restrict access to the general public. No organic contaminants were detected in surface soil samples from the second site tested.

Analysis of sediment samples from Dead Creek revealed the presence of organic and inorganic contaminants in each creek segment sampled. The highest concentrations of contaminants were detected in the northern portion of the creek, in areas reported to have received discharges from area industries in the past. Eight sediment samples were analyzed specifically for dioxin. This compound was not detected in any of the samples analyzed. Organic contaminants were detected only in surface

water samples from the two northern segments of Dead Creek. These two segments of the creek are, in effect, impoundments due to the blockage of culverts at each end of the segments. Because Dead Creek originates in an industrial area where the highest contaminant concentrations were detected, no upstream, or background, data could be collected for the creek.

Analysis of the subsurface soil samples revealed widespread contamination across each of the sites sampled. Several samples collected from sites adjacent to the northern portion of Dead Creek contained total organic contaminant concentrations in excess of 10,000 parts per million (ppm). Contaminants were detected in samples collected to a maximum depth of 50 feet at these sites. Although the most significant subsurface contamination was detected at the sites adjacent to Dead Creek, a variety of organic contaminants was also detected at each of the other project sites at which subsurface samples were collected. These analytical results indicate that the disposal of chemical wastes occurred at most of the former excavations identified in historical aerial photographs.

Analysis of groundwater samples from the various project sites revealed the presence of organic contaminants in groundwater at each of the sites sampled. The hydrogeological investigation confirmed that contaminants are migrating in groundwater in a westward direction toward the Mississippi River. The analytical and physical results of the hydrogeological investigation indicate that each of the project sites is contributing, to some degree, to the general degradation of groundwater quality in the area.

The analytical results from the air sampling investigation indicate a release of several organic contaminants from the sites sampled. Downwind air samples contained low levels of PCBs and several semivolatile compounds. Background, or upwind, samples did not contain these compounds, providing documentable evidence of a release of airborne contaminants resulting from conditions at the sites sampled.

Based on all of the data developed during this investigation, substantial and widespread contamination of various media (groundwater, soils, surface water, sediment) exists in the project area. The most significant contamination is found at the sites adjacent to Dead Creek

and the sites adjacent to the Mississippi River. Although source areas have been identified, and, to a certain degree, defined, the complete extent of contamination resulting from past waste disposal activities in the project area has not yet been determined.

Sites Which Are Difficult to Address

One commenter said that "unbounded or unmanageable sites, such as well fields" should not be included on the NPL. In response, EPA believes that, unless a remedial investigation and feasibility study has been completed at a site, it is not possible to specify whether a site presents a manageable problem. Furthermore, at many of those sites where commonly applied remedial actions are infeasible, some response actions short of waste removal or source controls, e.g., providing alternative water supplies, may be appropriate. EPA believes that the technologies for response actions have been developing rapidly; a response which was infeasible in the past may become feasible in the near future. Finally, with the case specifically mentioned, wellfields, the Agency has generally found the need for CERCLA response particularly acute since this generally involves contamination of public water supplies. Hence, EPA has not attempted to exclude sites which are especially difficult to address through current response technologies.

Noncontiguous Facilities

Section 104(d)(4) of CERCLA authorizes the Federal government to treat two or more noncontiguous facilities as one for purposes of response, if such facilities are reasonably related on the basis of geography or their potential threat to public health, welfare, or the environment. As previously stated (48 FR 45058, September 8, 1983), for purposes of the NPL, EPA has decided that in most cases such sites should be scored and listed individually because the HRS scores more accurately reflect the conditions at the sites if each is scored individually. In other cases, however, the nature of the operation that created the sites and, possibly, the nature of the appropriate response may indicate that two geographically separate properties should be treated as one site for purposes of listing. EPA has done so for some sites previously listed separately on the NPL.

Factors relevant to such a determination may include whether the two or more areas were operated as parts of a single unit. Another factor is whether contamination from the two or more sites is threatening the same part of an aquifer or surface water body. Finally, EPA will also consider the distance between the noncontiguous sites and whether the target population (i.e., within 3 miles) is essentially the same or substantially overlapping for the sites.

One commenter, Governor Bond of Missouri, submitted the 33 known dioxin sites in that State as a single site on the NPL. Using characteristics from various sites, he assigned a single HRS score to the 33 sites. Governor Bond maintained that the dioxin was produced by a single waste generator and that the sites had a common method of disposal. According to the Governor, by treating the sites individually EPA has complicated negotiations for health studies, development of cost recovery suits, and the State's accounting procedures.

EPA carefully considered the Governor's proposal and, taking into account the factors discussed above, decided that his reasons did not warrant consolidating the 33 sites into a single site. The sites are dispersed over a wide area of the State and affect different target populations. The 33 sites generally comprised different disposal operations rather than parts of the same facility. Many of the 33 sites would not individually score high enough to be on the NPL and, thus, the overall score for the 33 sites would be misleading. EPA has also concluded that listing the 33 sites as a single site on the NPL is not a prerequisite for developing a consolidated response strategy for the Missouri dioxin sites. Many of these sites may qualify for Fund-financed removal actions. The Agency is currently evaluating ways of coordinating possible response strategies at these sites to alleviate the problems which Governor Bond has identified.

Another commenter expressed the view that any grouping of noncontiguous sites would be inappropriate. EPA disagrees. In some instances the property boundaries or other factors commonly used to define a site may not be very useful or reasonable for determining if a problem involves one site or several. One example is the Minker/Stout/Romaine Creek site in Missouri where dioxin contaminated soils were used as fill in several yards in a residential neighborhood. Even though the contaminated areas are not contiguous and the properties involved have several different owners, the Agency determined that the site was really a single operation, that the same target populations might be affected; and that there is no logic to support treating the various areas as separate sites. Given the many factors involved in making such determinations and the differing importance that each factor may take on in various situations, the Agency must weigh each situation individually to determine if

noncontiguous disposal areas are a single site or several.

Where EPA determines, based on the above considerations, that two or more noncontiguous locations are most logically considered as a single site, they will appear as a single site on the NPL. While the listing suggests prospective response actions, it does not prescribe them; EPA may decide that response efforts should be distinct and separate for the two locations. Also, EPA may decide to respond to several sites listed separately on the NPL with a single response if it appears cost-effective to do so.

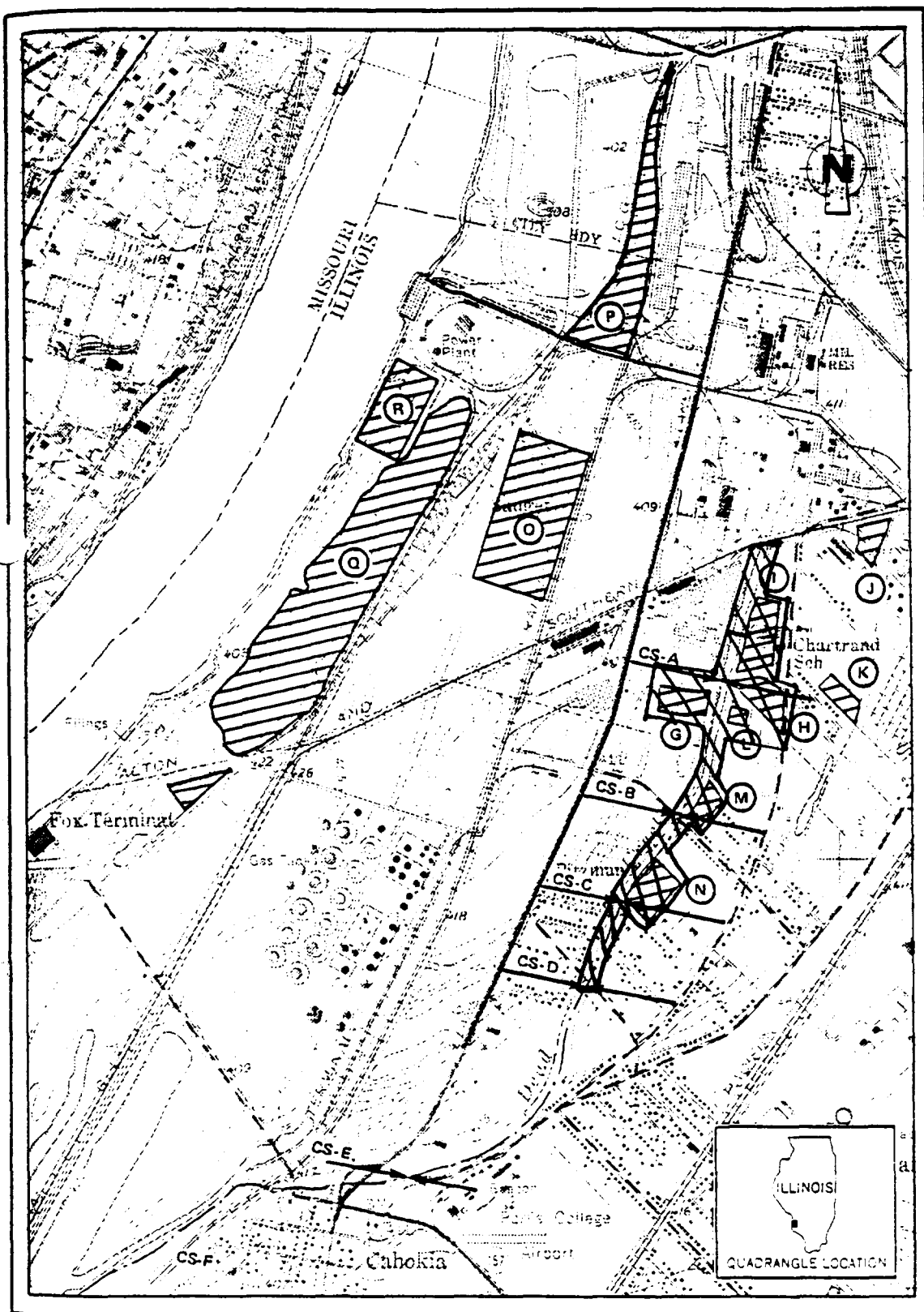
Scoring of Air Releases

A comment was received concerning how past air releases are scored. Language in the preamble to the final NCP caused a commenter on the Bayou Sorrell, Louisiana site to question whether past air releases may properly be included in a site's HRS score. This issue is discussed in detail in the "Support Document for the revised National Priorities List—1984" for the Bayou Sorrell site. However, the main points of this issue are presented in the following discussion.

EPA believes that past air releases are included in a site's HRS score. The HRS stipulates that a site is to be scored for an air release if data "show levels of a contaminant at or in the vicinity of the facility that significantly exceed background levels, regardless of the frequency of the occurrence (47 FR 31236). According to the HRS as established in the NCP revisions, therefore, the single evidence of an air release such as that which occurred at Bayou Sorrell, requires that the site be scored as having an observed release to air. This approach to scoring has been clarified by EPA's stated policy that sites are to be scored on the basis of conditions existing before any remedial measures were performed. This policy was clearly stated at the time of promulgation of the NCP revisions (47 FR 31188), and EPA considers it to be firmly established as part of the HRS. In addition, the Agency has attempted to clarify further the reasons for this policy in subsequent statements (48 FR 40864-5).

Several considerations underlie the policy. Actions by States to conduct or enforce cleanup might be discouraged if partial cleanup of a site could reduce the score such that the site would not be eligible for the NPL.

Another concern is that responsible parties might be encouraged to conduct minimal, incomplete cleanup actions at sites that might reduce the HRS score



The 10
Aggregated
Area #1
Sites:

I/H
CS-A
CS-B
CS-C
CS-D
G
M
N

Figure 2-1 DEAD CREEK PROJECT AREA SITE LOCATION MAP